Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Original) An electronic pressure switch comprising: a) a pressure transducer for providing an output voltage proportional to the magnitude of applied pressure; b) comparison means responsive to said output voltage for providing an output comparator signal when said voltage exhibits a predetermined value; c) a bistable device having a first and a second output and having an input responsive to said output comparator signal to switch from a first state at said first output to a second state and to switch at said second output from a second state to a first state during the presence of said comparator signal; d) a first source of operating potential adapted to be coupled to said bistable device; e) gating means for providing a pulse of a fixed duration, said gating means coupled to said source of operating potential to provide a gated potential adapted to be applied to said pressure transducer and said comparison means to enable said pressure transducer to provide said output signal during said duration and said comparator means to provide said output signal during said duration, said pulse duration being relatively small to thereby reduce power consumption of said switch due to the operation of said pressure transducer and said comparison means during said pulse duration; and f) indicator means coupled to said bistable device to provide an indication indicative of the state of each output of said bistable device.

2. (Original) The electronic pressure switch according to claim 1 wherein said pressure transducer is a piezoresistive Wheatstone bridge transducer.

3. (Original) The electronic pressure switch according to claim 2 further including a differential amplifier having first and second inputs coupled to said bridge and for providing an amplified output voltage at an output of said amplifier.

4. (Original) The electronic pressure switch according to claim 3 wherein said comparison means includes a comparator having a first input coupled to said output of said differential amplifier for receiving said amplified output voltage output, a threshold level generator to provide a threshold level coupled to a second input of said comparator to cause said comparator to provide said output comparator signal when said output of said differential amplifier exceeds said threshold level.

5. (Orignal) The electronic pressure switch according to claim 4 wherein said bistable device includes a flip-flop having an input coupled to said output of said comparator and operative to change state when said comparator provides said comparator output signal.

6. (Original) The electronic pressure switch according to claim 5 further including: a first actuatable switch having a control terminal coupled to said first output of said bistable device, said switch operable to provide a low impedance to a point of reference potential when said first output of said bistable device is in said first state and a high impedance when said bistable device is in said second state, a second actuatable switch having a control terminal coupled to said second output of said bistable device and said switch operable to provide a low impedance when said second output of said bistable device is in said first state and a high impedance when said bistable device is in said second state.

7. (Original) The electronic pressure switch according to claim 6 wherein said indicator means includes a first lamp having first and second terminals, with said first terminal coupled to said first switch to cause said lamp to illuminate when said first switch provides said low impedance and indicative of a normal pressure range, a second lamp having first and second terminals with said first terminal coupled to said second switch to cause said lamp to illuminate when said second switch provides said low impedance and indicative of a different pressure range, said second terminal of said first and second lamps connected together and adapted to receive a predetermined lamp operating potential.

8. (Original) The electronic switch according to claim 1 wherein said source of operating potential includes a voltage regulator adapted to receive said predetermined lamp operating potential at an input to provide at an output said operating potential of a lower value than said lamp operating potential.

9. (Original) The electronic switch according to claim 8 further including an output select circuit having first and second inputs with said first input coupled to said first terminal of said first lamp and said second input coupled to said first terminal of said second lamp to provide at an output said lamp operating potential obtained from said lamp terminal associated with the lamp that is not illuminated, said output coupled to an input of said voltage regulator.

10. (Original) An electronic pressure switch for use in a pressure monitoring environment for providing a visual indication of pressure ranges, said visual indication provided by a

first and a second incandescent lamp, where said first lamp illuminates during an acceptable monitored pressure range where said second lamp is off, and second lamp illuminates during an unacceptable pressure range where said first lamp is off, said first and second lamps having one terminal connected together and adapted to be connected to a source of potential, said other terminal of each lamp when connected to a point of reference potential will cause the lamp to illuminate when said source of potential is present, said switch comprising: a voltage regulator operative to provide an output operating potential, said voltage regulator including means coupled to said other terminal of each lamp to enable said regulator to receive said source of potential when said source is connected to enable said regulator to provide said output operating potential, a first actuatable switch coupled between said other terminal of said first lamp and a point of reference potential to enable said first lamp to illuminate when said switch is actuated in an on state, a second actuatable switch coupled between said other terminal of said second lamp and to a point of reference potential to enable said second lamp to illuminate when said switch is actuated in an on state, control means coupled to said switches to selectively actuate one switch to said on state with said other switch remaining in an off state in response to a switching signal to cause said associated lamp to illuminate, gating means coupled to said regulator to provide at an output said output operating potential during a predetermining gating interval, pressure monitoring means coupled to said output of said gating means to provide an output pressure signal during said gating interval indicative of a monitored pressure, means responsive to said monitored pressure to provide a switching signal at an output when said monitored pressure exceeds a predetermined value, said switching signal coupled to said control means to selectively activate one of said switches.

11. (Original) The electronic pressure switch according to claim 10 wherein said control means comprises a bistable flip-flop having a first output coupled to said first actuatable switch and said second output coupled to said second actuatable switch wherein either said first or second switch is on for one state of said flip-flop with said other switch off for said state.

12. (Original) The electronic pressure switch according to claim 10 wherein said pressure monitoring means includes a piezoresistive Wheatstone bridge for providing a voltage proportional to an applied pressure at an output.

13. (Original) The electronic pressure switch according to claim 12, further including a differential amplifier coupled to said bridge output to provide at an output an amplified voltage indicative of said applied pressure.

14. (Original) The electronic pressure switch according to claim 13 further including a comparator having a first input for receiving a threshold voltage indicative of an alarm pressure value requiring a visual indication from said second lamp, and having a second input coupled to said differential amplifier output to provide a trigger output during said gating interval indicative of said alarm pressure value, said trigger output coupled to an input of said flip-flop to cause said flip-flop to change state, to illuminate said lamp indicative of said alarm state.

15. (Original) The electronic pressure actuatable switch according to claim 1 wherein said first and second switches each include an FET transistor, each having a gate input for

selectively activating said FET, a drain electrode coupled to a point of reference potential and a source electrode coupled to said other terminal of said associated lamp, with said gate electrode of said first actuatable FET switch coupled to said first output of said flip-flop and with said gate electrode of said second actuatable FET, coupled to said second output of said flip-flop.

16. (Original) The electronic pressure switch according to claim 10 wherein said gating means includes an oscillator for providing at an output a gating signal having a predetermined gating pulse interval which is small compared to the gate pulse repetition rate.

17. (Currently Amended) The electronic pressure switch according to claim 15 wherein said [[FET's]] FETs are [[MOSFET's]] MOSFETs.

18. (Currently Amended) The electronic pressure switch according to claim 17 where said [[MOSFET's]] MOSFETs are n-type.

19. (Original) The electronic pressure switch according to claim 10 further including an output select circuit having a first input coupled to said other terminal of said first lamp and a second input coupled to said other terminal of said second lamp to provide at an output said source of potential for application to said regulator whereby said regulator receives said source of potential independent of which lamp is illuminated.

20. (Original) The electronic pressure switch according to claim 10 wherein said switch operates as a single pole double throw (SPDT) switch.